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IAS STUDY GROUP

Motivation and Emotion

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A. Motivation

A.1 What is Motivation?

Although we all have an intuitive sense of the meaning of motivation, psychologists need a more precise definition. In part, this need arises because psychologists ask many different kinds of empirical questions, such as how behaviour occurs, why it occurs, and what factors influence behaviour. Often these questions are interrelated and difficult to tease apart. But if we were to choose one that best describes motivation, it would be the question, "Why?" The study of motivation is very much the study of why behaviour occurs.

Motivation can be defined as the desires, needs, and interests that arouse or activate an organism and direct it toward a specific goal. Thus, we would expect the behaviour of a motivated organism to differ sharply from that of unmotivated organisms. For example, a runner who wants to complete a marathon will train more vigorously than an individual who has only a casual interest in distance running. Similarly, a hungry rat placed in a complex maze will search for food more purposefully than a rat that has not been deprived of food.

Hence, Motivation -

1. is the psychological force that drives us towards a particular goal in the environment
2. It initiates, energizes and maintains behaviour until the goal is reached

A.2 Why do we need the concept of Motivation?

Although we all have an intuitive sense of the meaning of motivation, psychologists need a more precise definition. In part, this need arises because psychologists ask many different kinds of empirical questions, such as how behaviour occurs, why it occurs, and what factors influence behaviour. Often these questions are interrelated and difficult to tease apart. But if we were to choose one that best describes motivation, it would be the question, "Why?" The study of motivation is very much the study of why behaviour occurs.

For example:

1. Why do people go on dangerous adventure trips like mountain climbing, bungee jumping, river rafting etc.?
2. Why did the mountain man of Bihar cut the mountain for 20 years to make a road even when people around ridiculed him?
3. Why, in a T-maze with food on right end and water on the left end, a hungry rat consistently turns right and a thirsty rat turns left at the decision point?
4. Why some people go on hunger strike and do not accept any food or water even on the verge of death?

These behaviours are not satisfactorily explained by the S-R models. Hence we devise the construct of Motivation to explain intentional behaviours and to explain the consistency in behaviour across dissimilar situations.

A.3 What are the characteristics of motivation or motivated behaviour?

1. Motivation is dynamic. It varies in magnitude as well as in its polarity (i.e. positive and negative motivation). For example, a hungry rat in a cage with food on the other side of an electrocuted barrier will not jump over the barrier until the drive from hunger is higher than the negative motivation of the shock.

2. Motivated behaviour is consistent – Behaviour is sustained even in the most difficult situations.
3. Motivated behaviour is goal directed
4. Motivation, particularly physiological motivation, is cyclic in nature.
5. Motivated behaviour is energized
6. Motivated behaviour shows greater resistance to extinction until the goal is reached.
7. Motivation is not visible directly. Hence, we infer motive from the behaviour of the organism.
8. Motivation can arise from either internal or external sources. The desire for food and water arises from internal, physiological needs. On the other hand, the desire for approval and recognition results from external, social circumstances. And sometimes motivation results from the interaction of both internal and external factors. For example, we all have the need to eat, but what we end and how much we eat are determined by environmental variables and prior learning.
9. Motivated behaviour is often accompanied by strong emotion. For example, a person who spends many hours on a single task, such as searching for a cure for cancer, often experiences feelings of tedium and frustration until the goal is achieved. On the other hand, feelings of joy and happiness accompany even a partial solution to such a long-standing goal.

A.4 Why human motivation is complex?

1. Human motivation is made of multiple components. Behaviour might be influenced by many different motives- such as physiological, psychological, social, or spiritual motives. Multiple overlapping motivations may exist simultaneously (Maslow). A person may eat because she is physically hungry, because she feels afraid, because she feels lonely or unloved, because she is seeking pleasure or self-esteem, or for all of those reasons at once.
2. Motivation is influenced by factors that are internal to the organism as well as external factors.
3. Mere presence or absence of a factor influencing motivation does not guarantee the occurrence of behaviour. For example, physical comforts are one factor motivating studying behaviour. However, even though all comforts available to a student, he/she may not be motivated to study.
4. Motives are unique to the individual. Hence, Individuals vary in their motivations in the same way as they vary in their perceptions. For example, two persons who have failed a test may act differently – one may take it as a challenge and work hard to achieve.

B. Theories of Motivation

Theories of motivation give different weight to internal and external factors in trying to explain the motivated behaviours.

B.1 Instinct Theory

Instinct theories emphasize motivation as a biological tendency. The concept of instinct played a major role in early psychological approaches to motivation. Many psychologists, inspired by Darwin's (1859) theory of evolution, which argued that humans and animals differ only quantitatively, identified human instincts that would explain human behaviour.

One way to explain why organisms act the way they do is to propose the existence of instincts. An instinct is an innate or genetically predetermined disposition to behave in a particular way when confronted with certain stimuli. For example, if a squirrel discovers a nut on the ground, it will bury the nut for future consumption. This behaviour does not seem to require much prior learning. Rather, the

behaviour is set in motion by the presence of the nut or for that matter by the presence of any object that is hard and round.

The idea that instincts control certain behaviours is one of the oldest nations in psychology. At the turn of the century, instinct theory was popular both in North America and in Europe. There was a considerable effort, especially in American psychology, to identify the basic instincts that governed survival. At first, 10 basic instincts were suggested, such as aggression, reproduction, and flight. However, the list soon began to grow and upwards of 20 instincts were proposed, many of which had little to do with survival (for example, cleanliness, modesty). As the number of proposed instincts grew, many critics objected that the word instinct had lost its meaning. It had become a convenient way of labelling, rather than explaining, complex human behaviour.

B.1.1 Ethology and Instinct Theory

Instinct theory was revised in the 1930s by a group of scientists known as ethologists. Ethology is the study of the behaviour of animals in their natural habitats. A modified notion of instinct became a central part of the ethologists' theorizing.

By observing animals closely, ethologists noted what they called fixed-action patterns. A fixed-action pattern is really a synonym for the term instinct, but ethologists wanted to avoid some of the problem associated with the earlier use of the word instinct. They carefully defined a fixed-action pattern as an unlearned behaviour that is universal to a particular species and that is elicited or released in the presence or naturally occurring events. The events that elicit these fixed-action patterns are known as sign stimuli.

A classic example of a fixed-action patterns was described in the work of a well-known ethologist and Nobel laureate, **Nikolass Tinbergen**, who studied a species of fish known as the three-spined stickleback. Aggressive behaviour in this fish is released whenever it spots the red belly of a male stickleback. In a series of clever experiments, demonstrated just how important the sign stimulus was to the release of aggression. Using wooden models of male sticklebacks, Tinbergen discovered that aggression would not occur in the presence of a perfect replica of a male intruder unless the belly was painted bright red. On the other hand, even a poorly constructed replica would elicit aggression if the belly was painted red. Thus, the red belly was the critical sign stimulus for the release of aggression in the stickleback.

B.1.2 Modern Instinct Theory

By carefully studying the fixed-action pattern of different species, ethologists revived the idea that instincts are motivators. However, the original concept of fixed-action patterns has been modified considerably in contemporary ethology. The current view is that instinctual behaviour follows an inborn plan that allows for substantial flexibility in the course of development. For example, the greylag goose has an inborn tendency to retrieve an egg that rolls from its nest. However, this behaviour may change if the egg rolls to a place that is dangerous for the goose. Similarly, infants have a tendency to form a strong emotional bond with their biological mother, but the infant can form a bond with a substitute mother. Instinctual behaviour, then, is viewed as innate or pre-programmed but subject to modification in the face of environmental demands.

Modern instinct theory is not without its critics. One point of debate is whether instincts should really be considered innate. Some psychologists believe that to call instincts innate is misleading because it implies that experience plays no role in the development of "instinctual" behaviour patterns.

They argue that many of the behaviours that ethologists call instinctual are influenced by the experiences that an organism has, including experiences that occur before birth. As one example, this group cites the behaviour of newly hatched ducklings who can detect the difference between the maternal call of their species and the call of the mothers of certain other species of birds. This discrimination is virtually impossible for humans to make. That ducklings can recognize their mother's call immediately after birth is very impressive and suggestive of an unlearned behaviour. However, research has shown that experience which take place just before hatching are responsible for the duckling's ability to discriminate maternal calls. One important event occurs when the duckling's bill penetrates the interior membrane of the egg, and the duckling begins to "talk to itself." Experiments have shown that this self-vocalization with the egg is critical to the duckling's subsequent ability to identify the maternal call of its species.

B.1.3 Sociobiology

The most provocative and controversial view of instinctual motivation comes from a relatively new discipline known as sociobiology. According to the theory of sociobiology, the primary motivation of all organisms, humans included, is to ensure the future survival of their basic hereditary mechanism – the genes. From this perspective, human behaviour is basically selfish because it is designed to protect the genes from extinction. Indeed, sociobiologists believe that even behaviour that appears absolutely selfless, such as altruism, is motivated by the principle of gene survival.

For example, sociobiologists define altruism as an act that increases the fitness of another at the expense of one's own fitness. Fitness is specified by the number of offspring who survive the individual. In other words, an altruistic act is one which increases the probability that an individual's close relatives will survive. From this perspective, evolutionary pressures do not favour the survival of the individual if this is incompatible with the survival of the group. What matters, as Edmund Wilson, a prominent sociobiologist, stated, is "the maximum average survival and fertility of the group as a whole".

With altruism defined in this way, Wilson argues that there is a strong genetic component even to human altruism. Indeed, it appears to Wilson that altruism is nothing more the "genetic selfishness." Although humans may perform heroic and self-sacrificing acts, such as risking their own lives to save their children's the outcome of this heroism is always the same – many the surviving offspring or relatives. Wilson, in effect, downplays the usual social explanations of altruism, such as empathy and caring for others, in favour of a largely genetic explanation of why people behave altruistically.

Sociobiology has generated a great deal of interest as well as its share of criticism. Many people object to a treatise on altruism that does not address the social context in which altruism takes place. Even though Wilson feels that only about 10 percent of human social behaviour can be explained through genetics, his reluctance to comment on the nature and importance of the other 90 percent has led many critics to charge that sociobiology is misleading. The principal objection of these critics is not that altruism is without a genetic basis, but that sociobiology oversimplifies the concept by ignoring the situational and personal variables that affect altruistic behaviour.

B.1.4 Freud's Theory of Motivation

In many ways Freudian psychoanalysis is an outgrowth of instinct psychology. Freud was strongly attached to both Darwin and Geothe, whose evolutionary system appealed to his biological interests. As a young man, Freud studied medicine at the University of Vienna, where a brilliant academic staff numbered among its members some of Europe's outstanding biologists, physiologists, and neurologists. Darwinism was in the air in Viennese academic circles; and Freud, finding himself drawn more and more toward psychology, believed he saw a way to keep the science of mind on a firm biological basis by

founding the motivational aspect of his psychoanalytic system on a modification of the reproductive instinct, which he called the libido.

Sigmund Freud was trained to be a physician, and, as a psychological theorist, he believed strongly in the biological basis of human behaviour. His original view was that all of human behaviour had its roots in eros, the drive for bodily pleasure. The strongest such pleasure was **sex (or id),** but Freud believed that people sought a variety of pleasurable bodily sensations. Why, then, do people perform many behaviours that seem to have no relation to physical pleasure? Freud argued that, because of various constraints, people either delay the expression of their desire for pleasure or express it in altered forms. According to Freud, there are constraints imposed by reality. For example, a person ordinarily needs to work to afford pleasurable activities. In this case, pleasurable activities are delayed until the work to afford pleasurable activities. In this case, pleasurable activities are delayed until the work is completed. Second, there are constraints imposed by morals. For example, many people may feel that merely pursuing pleasure is immoral, or at least those certain pleasures are immoral. These values can restrict the expression and the extent of people's desires for pleasure.

The term libido is best understood as a psychophysical concept meaning both the bodily and mental aspects of the sex instinct. In other words, the libido is at once raw sexuality and the mental desire or longing for sexual relations. Freud, however, emphasized the mentalistic aspect of the libido in his writings; and for all practical purposes, libidinal energy may be equated with mental or psychic energy. Moreover, he employed the term to cover a range of behaviour and motivational phenomena ordinarily not considered sexual in the narrower sense. Self-love, a mother's love for her child, religious love – in fact, any pleasurable activities in which the individual engages – are broader aspects of the basic desire to achieve sexual satisfaction.

In his later writings, Freud further generalized his libido theory into an all-inclusive "life instinct," eros. Eros includes self-love, love for others, the instinct for self-preservation, the desire to propagate the species, and the tendency to grow and realize one's potentialities. In short, **eros** is the creative force that underlies life itself. Freud argued that because the drive for pleasure conflicts with reality and morality, it is often channelled, or sublimated, into behaviours that are realistic and moral but still give some satisfaction to the need for pleasure. For example, a Freudian psychologist might argue that a man's interest in fashion is sublimation of his sexual drive.

However, Freud also observed in his patients the urge to destroy – sometimes to destroy the self, sometimes others. Man, he believed, is inevitably drawn toward death. If the death instinct is turned inward, it results in suicide; if outward, in hate or aggression or, in its worst form, murder. This all-embracing instinct of death and destruction he called **thanatos**. Freud believed that because thanatos conflicts with eros, it is often channelled outward in the form of aggression or destructiveness toward others. Freud proposed the idea of thanatos after World War I. He felt that some kind of destructive drive was needed to explain the massive devastation he observed during the war. Freud believed that destructive urges, like erotic ones, are constrained by reality and morality.

Since eros and thanatos exist side by side, we are all driven by conflicting unconscious forces. Love, then, is a fusion of eros and thanatos. In fact, every human motive is an alloy of both constructive and destructive impulses. Freud agreed in principle with the poet Oscar Wilde, who said that in wish or deed each man kills the things he loves.

On the basis of these fundamental instincts, Freud built his entire system of motivation. As the child develops, the elaboration of eros and thanatos determines his or her relationships with members of the family constellation and the child's reactions to the social order into which he or she is born and to

those with whom he or she will have interpersonal relations during adulthood. The libido goes through oral, anal, and genital stages of development in infancy followed by a latent period during which the child is being socialized.

Freud was also convinced that slips of the tongue, errors in writing or behaving, and accidental or symptomatic acts reveal hidden motivation. Of special importance in indicating a strong desire to repress or hide unconscious motives is the process of resistance, which is encountered in neurotic patients during therapy. The operation of resistance is revealed when the patient's free associations become unproductive, when he or she refuses to go on, "forgets" appointments, or otherwise behaves as if he or she were on the defensive, according to Freud, the appearance of resistance indicates that a sensitive, painful area of the unconscious is being approached; and for protection from the anxiety attendant upon the exposure of deeply approached; and for protection from the anxiety attendant upon the exposure of deeply repressed impulses or experiences, the patient strengthens his or her defence. In such cases the analyst moves slowly, reassures the patient as the analysis proceeds, and helps him or her to understand the meaning of defensive behaviour.

Finally, neurotic symptoms themselves reveal the operation of unconscious motives. The unsatisfied libido, frustrated by reality, is forced to seek its satisfaction in other ways, and the symptoms become substitutes for the suppressed urges of the libido. Symptoms are less shocking to the individual's conscious than the direct wishes lurking in the unconscious. Thus, compulsive symptoms such as hand, washing, counting steps, or touching certain objects are symbolic, disguised wish fulfilments of repressed desires. By carrying out the compulsive act, the individual achieves tension reduction. Consequently, symptoms act as safety valves for relieving pent-up libidinal energies that might otherwise explode catastrophically.

Freud's views were controversial when he proposed them, and they have remained that way. Many later psychologists rejected Freud's theory of human motivation for three reasons. First, a comprehensive account of human motivation must recognize that humans have many motives, interests, needs, and desires. Second, at least some of these motives are directed toward positive or noble behaviours, such as artistic creation. Third, not all motives are based on physiological needs. Some are acquired through social interaction. Two theorists who share these views are Henry Murray and Abraham Maslow, who both discussed the multiplicity of needs that guide human behaviour.

B.1.5 Criticism of Instinct theories:

Psychologists have criticized instinct theories for the following reasons:

1. These theories are too simplistic or over simplified. Not all motives are based on physiological needs. They could explain the behaviour of lower order animals but cannot explain the complex behaviour of human beings. Some human motives are acquired through social interaction too. These theories cannot explain the social motives behind behaviour.
2. Instinct theories do not explain how motivation works in initiating, energizing and sustaining behaviour and hence cannot explain the exact mechanism of motivation.
3. All instincts could not be identified so far. For example, McDougall (1908) originally proposed 12 and, by 1924, over 800 separate instincts.
4. Circularity of explanation is another issue. To explain behaviour by labelling it with names of instincts is to explain nothing (e.g. 'We behave aggressively because of our aggressive instinct' is a circular statement)

B.2 Drive Reduction Theory

Another biologically based theory of motivation involves the concepts of drive and its reduction. These two related concepts, like the concept of instinct, have figured prominently in motivation research for many years. Freud theorized that human behaviour was motivated largely by sexual and aggressive drives. However, Clark Hull (1943) undertook the first systematic study of the concepts of drive and drive reduction.

Hull and his students believed that organisms were motivated to eliminate or reduce bodily tension. A common example is the discomfort that arises from the deprivation of food or water. If a rat is deprived of water for 24 hours, it develops a strong physiological need for water. In turn, this need creates a state of tension or arousal. Drive is the term used to define the state of tension that occurs when a need is not met. Hull believed that drives motivate organisms to reduce tension. Thus, in Hullian terms, organisms in a high state of arousal are motivated to engage in the process of drive reduction, a set of behaviours designed to reduce or eliminate bodily tension. In our example, the rat is motivated to perform behaviours that will reduce its level of thirst.

While the terms 'need' and 'drive' are often used interchangeably, they're fundamentally different:

- Needs are physiological and can be defined objectively (for example, in terms of hours without food or blood sugar level).
- Drives are psychological (behavioural) and are hypothetical constructs – that is, abstract concepts that refer to processes/events believed to be taking place inside the person/animal, but that cannot be directly observed or measured.

Drives and Homeostasis

As we noted above, the concept of drive is closely related to an organism's internal state of tension or arousal. For this reason, psychologists are interested in how organisms react to changes in their internal states. One possibility is that both humans and animals attempt to maintain certain internal states on a constant or even level. In physiological terms, this is known as seeking homeostasis, which literally means an "equal state" and is defined as an ideal or optimal level of physiological functioning that maintains an organism at a balanced or constant internal state.

Body temperature in humans provides a good example of homeostasis. Normal body temperature is approximately 98 degrees. If it begins to deviate more than a few degrees in it begins to deviate more than a few degrees in either direction, the body will compensate automatically, either by shivering or perspiring. Shivering and perspiring are the body's automatic homeostatic mechanisms for controlling body temperature.

Homeostasis is particularly useful in explaining the motivation for physiologically based activities such as eating and drinking. But unlike temperature, the homeostatic mechanisms that control eating and drinking can be maintained only by voluntary effort. For instance, food alleviated hunger, but organisms acquire food only be eating. There is no automatic, internal mechanism to correct for the continued absence of food. Thus, when an organism is deprived of food for several hours, it is motivated to restore balance by eating.

The principle of homeostasis, then, is closely related to the concept of drive. In order to maintain certain bodily functions at a steady state level, organisms must eliminate or reduce high and unpleasant levels of tension, or in Hullian terms, engage in the process of drive reduction.

B.2.1 Advantages of Hull's Theory

Hull's theory provided some distinct advantages for the study of motivation. Perhaps the most important of these was the opportunity to operationalize the key concept of drive. , Hull operationalized drives as hours of deprivation. He proposed a number of equations that were meant to be testable in laboratory experiments. Because a drive cannot be observed directly, psychologists must infer from the behaviour of an organism that a drive exists. As an example, if we observe that a hungry animal search for food more rapidly than other does need for food created a state of tension known as the hunger drive. Thus, within the framework of Hull's theory psychologists could measure drives by manipulating the physiological needs that give rise to drives.

Also, biological mechanism behind drive reduction process was shown with experimental proof. For example, physiologists hold that changes in the metabolic functions of the liver result in a feeling of hunger. The liver sends a signal to a part of the brain called hypothalamus. The two regions of hypothalamus involved in hunger are - the lateral hypothalamus (LH) and the ventro-medial hypothalamus (VMH). LH is considered to be the excitatory area. Animals eat when this area is stimulated. When it is damaged, animals stop eating and die of starvation. The VMH is located in the middle of the hypothalamus, which is otherwise known as hunger-controlling area which inhibits the hunger drive.

B.2.2 Limitations of Drive Reduction Theory

Psychologists recognized that some of the motivated behaviours they were studying could not results from a reduction of tension or arousal. Rats, for example, consumed the artificial sweetener saccharin has no nutritive value and therefore cannot reduce the physiological basis for hunger or thirst. Also, Humans always do not seek to reduce the drive. Some activities suggest a need to increase arousal such as roller coaster rides, sky diving, and horror movies.

At its simplest, needs can arise without specific drives, as in learning what and how much to eat. For example, we need vitamin C, but we wouldn't normally talk of a 'vitamin C drive' (in the way that we talk about a general hunger drive).

Drive reduction theory could explain the mechanism of biological motivation but cannot explain higher order motivation, even in lower order animals, satisfactorily. For instance, monkeys were observed solving complex problems simply for the opportunity to look at interesting events, such as a toy train moving around a track. Results of this kind were difficult for drive reduction theorists to explain. Hence, all motivated behaviours could not be explained by drive reduction theory.

Also, drive reduction theory cannot explain the external factors influencing motivation.

B.3 Optimal Arousal Theory

As the popularity of drive theory waned, psychologists began to reflect more broadly on motivation, particularly in humans. One common observation was that on many occasions people seemed to desire an increase in their level of tension or excitement, referred to as **arousal**. Some contemporary examples of activities that suggest a need to increase arousal are roller coaster rides, sky diving, and horror movies. While these examples point to the need to increase arousal, there are other occasions when people seek to decrease arousal. In other words, we may have a preference for an optimal level of arousal that is neither too high nor too low.

Many psychologists are favourably impressed with the idea that the nervous system seeks a balance – an optimal level – of arousal. **Yerkes-Dodson law** suggested a theoretical relationship between level of arousal and degree of efficiency in performing certain tasks. If an individual is in a low state of arousal (as when he or she is very tired or just awakening from sleep), performance is likely to be impaired because of insufficient attention to the task at hand. However, a very high of arousal (extreme anxiety and nervousness, for instance) will also interfere with performance because the individual will be distracted from the task. Between the two extremes is an optimal level of arousal. Note that the curve depicting this relationship resembles an inverted U. For this reason, the arousal-performance relationship is often referred to as an inverted-U function.

The inverted-U relationship has one important qualification. The optimal level of arousal varies from one task to another. In general, people perform best on easy or well-learned tasks when they are operating at a relatively high level of arousal, while optimal performance on difficult tasks usually requires a lower level of arousal. The classroom provides one example. If you are taking class notes, you will do better if you maintain a relatively high level of arousal, but if you are taking an exam in your most difficult subject; your performance is likely to deteriorate if your arousal level is too high. You will need to relax somewhat to achieve your best score on a difficult test.

Though this theory provides theoretical idea about motivational process, optimal –arousal theory does not explain the exact mechanism of motivation.

B.4 Opponent-Process Theory

We can speak of some motives as acquired. The love of power, the need for achievement, the tendency to engage in thrill-seeking activities are all examples of acquired motives. On occasion, these acquired motives become powerful, driving forces in our lives. Witness the terrified parachutist who tumbles from an airplane miles above ground, or the addict who risks life and limb for a drug high. What motivates people to behave this way?

Richard Solomon believes that many acquired motives bring a basic or primary pleasure, but that each pleasurable experience eventually triggers some kind of discomfort. The pleasure of a high from heroin eventually brings the discomfort of withdrawal symptoms. Likewise, Solomon noted that emotional highs often compensate for initial suffering. The terror experienced by first-time parachutists seems to be offset by the elation they feel after conquering their fear of falling.

These observations, which were confirmed in laboratory studies, led Solomon to propose the opponent-process theory of acquired motivation. This theory can be illustrated most easily through a discussion of opposing emotional states, but it also reflects the general notion of equilibrium or "steady states" that is common to many theories of motivation. The essential claim of opponent-process theory is that every emotional experience leads to an opposite emotional experience that persists long after the primary emotion has passed. The opposite emotion, which develops immediately after the primary emotion, lingers for a longer period of time and diminishes the intensity of the primary emotion. This means, for example, that the fear accompanying parachuting lessens with

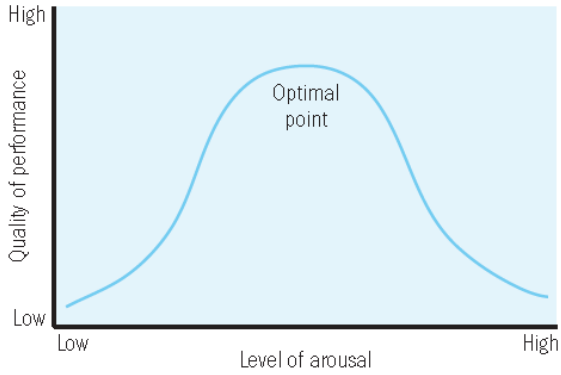

Figure 31.3 Graph showing the inverted-U relationship between arousal and performance

each successive jump while the exhilaration of the after experience remains.

Solomon predicts that behaviour is influenced by what happens in the long run rather than the short term. Repeated aversive experience, such as parachuting from an airplane, eventually lose their unpleasant effect and dispose the individual to seek new avenues of pleasure and excitement. Likewise, repeated pleasurable experiences, such as a drug high, eventually lose much of their pleasantness and open up new sources of discomfort. It would appear that Solomon's theory has many important social implications.

B.5 Incentive Theory

Although they differ in several important ways, the instinct, drive, arousal, and opponent-process theories of motivation share a common perspective. Each of these theories addresses the internal state of the organism. Some level of tension or arousal motivates the organism to perform certain actions. Put somewhat differently, the organism is "pushed" in certain directions by internal or biologically based states.

A contrasting idea is that external goals motivate organisms to perform certain actions. The external stimuli in the environment that "pull" the organism in certain directions are called incentives. The basic assumption of incentive theory is that if a desirable goal can be anticipated following the completion of a particular action, the organism is motivated to perform that action. Conversely, anticipation of an undesirable goal-something aversive or unpleasant-motivates the organism not to perform the action. Thus, incentive theorists focus on the environment, rather than on the internal state of the organisms, and ask what induces organisms to act or what inhibits their action.

Incentive theorists can make useful distinctions in evaluating the factors that influence human performance. For example, grades are an obvious incentive for students. However, students are more likely to study for high grades if they expect that outcome to be associated with studying. Alternatively, students might believe that studying has little relationship to high grades. Thus, in this example we can distinguish between the value of a particular goal (high grades) and the expectation of attaining that goal. Incentive theorists often make such a distinction. It further elaborates their focus on the (external) environmental events that underlie motivated behaviour.

B.6 Maslow's Theory of Motivation

Rationalist philosophers saw human beings as free to choose between different courses of action. This makes the concept of motivation almost unnecessary: it's our reason that determines our behaviour. This idea of freedom and responsibility is a basic premise of both humanistic and cognitive approaches.

One of the most popular theories of motivation has been propounded by Abraham Maslow, a famous social scientist.

Abraham Maslow (1954) believed that a range of needs motivates human behaviour. Maslow believed the number of needs is relatively small. He classified human needs into seven major groups. Maslow's key contribution was the idea that these seven needs can be ranked in a hierarchy, ranging from the physiological needs (lowest) to the highest human need, the need for self-actualization.

According to him the behaviour of an individual at a particular moment is usually determined by his strongest need and that needs have a certain priority or hierarchy. As the more basic needs are satisfied an individual seeks to satisfy the higher needs. If his basic needs are not met, efforts to satisfy the higher needs should be postponed. Once a need is satisfied it loses its capacity to induce the man to work. Only unsatisfied needs or fresh needs can motivate persons to work.

Maslow was of the view that needs have priority, i.e., needs are satisfied in an order. As soon as the lower level needs are satisfied. Those on the text higher level emerge. Thus, he considered an individual's motivation behaviour as a predetermined order of needs. According to Maslow, the basic human needs are set in a hierarchy as follows:

1. **Physiological needs**: - These needs are basic for human survival and include need for food, water, air, shelter, sleep, thirst, etc.
2. **Security or Safety needs**: - These are needs for physical safety as well as psychological security and induced safety of person and property, security of job and need for a predictable, secure and safe environment.
3. **Social needs**: - These are needs for belongingness, friendship, love, affection, attention and social acceptance.
4. **Esteem or ego needs**: - These are needs for self – esteem and need for other esteem needs. Self – esteem needs include needs for self – respect, self – confidence, competence, autonomy and knowledge. Other esteem needs related to reputation, prestige, power, status, recognition and respect of others.
5. **Self – actualization needs**: - This is the need "to be what on is capable of becoming" and includes need for optional development of potential abilities, knowledge and skills, need to be creative and achieve self – fulfilment.

According to Maslow, these needs are related to one another and are arranged in an order of hierarchy of prepotency. This may be shown in the following figure: -

Self-actualisation
Realising one's full potential' 'becoming everything one is capable of becoming'.
Aesthetic needs
Beauty – in art and nature – symmetry, balance, order, form.
Cognitive needs
Knowledge and understanding, curiosity, exploration, need for meaning and predictability.
Esteem needs
The esteem and respect of others, and self-esteem and self-respect. A sense of competence.
Love and belongingness
Receiving and giving love, affection, trust and acceptance. Affiliating, being part of a group (family, friends, work).
Safety needs
Protection from potentially dangerous objects or situations, (e.g. the elements, physical illness).
The threat is both physical and psychological (e.g. 'fear of the unknown').
Importance of routine and familiarity.
Physiological needs
Food, drink, oxygen, temperature regulation, elimination, rest, activity, sex.

At the lowest level are physiological needs for survival. As one need is reasonably satisfied, the next higher order need becomes operational. This happens because a satisfied need is no longer a motivator, only unsatisfied needs compel people to act. Until physiological needs are satisfied to the degree

needed for the efficient operation of the body, other levels will provide him with little satisfaction and motivation. A famous saying, “man can live on bread alone if there if there is no butter” suggests that human beings first try to acquire necessities for their survival. Once the physiological needs are satisfied to a reasonable degree there comes safety needs.

An organization can influence these security needs through job security, insurance and retirement plans, safe and healthy working conditions. After the first two hands are satisfied, social needs become important in the need hierarchy. In a work situation, social needs are concerned with relating to friendly associates, identification with good company and participation in organized social activities. Esteem or ego needs provide management almost unlimited scope to create an environment for their gratification. These needs are more dominant at the level of managers and at the worker level, and responsibilities, praise, promotions are all important factors in satisfying the esteem needs. Needs for self – actualization are the highest order needs. In an organization, a person attempting to satisfy this need seeks challenging work assignment that allow for creativity and opportunities for personal growth and advancement.

Higher-level needs are a later evolutionary development: in the development of the human species (phylogenesis), self-actualisation is a fairly recent need. This applies equally to the development of individuals (ontogenesis): babies are much more concerned with their bellies than with their brains. But it’s always a case of one need predominating at any one time, not excluding all other needs.

The higher up the hierarchy we go, the more the need becomes linked to life experience, and the less ‘biological’ it becomes. Individuals will achieve self-actualisation in different ways, through different activities and by different routes. This is related to experience, not biology.

All needs do not have an automatic mechanism. Higher level of needs require awareness for their activation. Also, the higher up the hierarchy we go, the more difficult it becomes to achieve the need. Many human goals are remote and long term, and can only be achieved in a series of steps. This pursuit of aims/goals that lie very much in the future is unique to human beings, although individuals differ in their ability to set and realise such goals.

Hence, Maslow’s need theory was an attempt at synthesis of different theories that existed to explain motivated behaviour.

B.6.1 Critical Evaluation

Maslow’s theory is a landmark in the field of motivation. This theory fits with common sense about motivation. The hierarchical concept of need help the management in understanding the behavior of men at work. Satisfied needs cannot be motivator and therefore management should target satisfying the higher level needs of the employees. However, this theory has been subjected to a lot of criticism.

- There is little evidence for the ranking of needs that Maslow described or even for the existence of a definite hierarchy at all. Hierarchy of needs is different; in different societies; in different organization and for different people. This concept of needs is influenced by environmental factors. Eg. Religious terrorism can occur just beyond satisfaction of basic needs. This spiritual and abstract need does not follow the hierarchy as suggested by Maslow.
- Physiological needs may be ignored or relegated in favour of higher needs, such as social acceptance: when teenager is hungry but her friends are not, so she may delay eating. A hungry factory worker may wait for the proper lunch break rather than risk the financial or social consequences of ceasing work to eat based solely on her physiological urges. Same is the case

with Anorexia Nervosa, an eating disorder, where higher aesthetic need of beauty precedes in priority over the basic biological need of hunger.

- The needs hierarchy is based on US cultural values, which is basically individualistic. Outside USA, this theory has found little support. In countries such as China, Japan and Korea, which have collectivist cultures, belonging and security are significantly more important than growth or self-actualization. Therefore, although the needs that Maslow identified may be universal, the logic or sequence of the hierarchy differs from culture to culture.

  Physiological needs can be considered universal in all cultures, because they are based on biological realities that are shared among all human beings. The ways in which those needs were expressed, met, and responded to would be culturally determined. Various cultures may provide completely different ways of satisfying the need for self-esteem (for example) but the fundamentally the need was universal and the manifestation was culturally unique. Culture and environment could also influence the relative prepotency of different needs. The hierarchy of the higher needs (love, esteem, and self-actualization) would probably change significantly by cultures, especially since cultures vary significantly in terms of the value of the individual or the social group, which could reverse the hierarchy between love needs and esteem needs.

  Adler (1977) used Maslow's hierarchy to understand the experience of refugees arriving in Israel. He found that no matter what level of psychological development the individual had attained in their country of origin, they tended to be pushed by various factors to the bottom of the hierarchy. During the first two months, the refugees were primarily focused on safety and physiological needs, particularly housing. After the basic satisfaction of these needs, a set of social needs was observed to emerge. The final stage of adjustment is when the refugee's needs are well satiated and the individual is functioning in the new environment. Adler's (1977) study was one of the only empirical works to find support for Maslow's theory; it is interesting to note that Maslow's categories and the mechanism of need emergence (through gratification of needs) is reflected exactly according to Maslow's (1970) theoretical assertions although it represents a population that is significantly different from the population upon whom the theory was originally modelled.
- There are some need satisfiers that seem to affect more than one level of hierarchy, for example money.
- Maslow's theory is difficult to test because of the nature of the subject matter, the difficulty with defining the concepts and the high degree of overlap, for example between love and esteem, or physical and safety needs.

C. Important Social Motives

As we can see from theorists as diverse in their thinking as Freud, Murray, and Maslow, motives related to social conditions as well as to physiological conditions affect human behavior. There has been a great deal of research on a number of these motives. Here we will consider some of them, the need for social approval and the need for achievement.

C.1 The Need for Approval

Most human beings have a need for positive reactions from other people. Murray proposed a need for affiliation; Maslow discussed the need for belongingness. Similar to these needs is a desire simply to gain approval, or some kind of sign that others like us and think we are good. One interesting aspect of the need for approval is that there are marked individual differences in the degree to which people

need approval. Some people are relatively indifferent to what others think of them. Others act as if they would do almost anything to gain approval or, perhaps more importantly, avoid disapproval.

The characteristics of people with a high need for approval have been investigated through the use of Social Desirability Scale developed by Douglas Crowne and David Marlowe. This scale measures the extent to which people try to gain other's approval by behaving in socially desirable ways. It contains items such as the following:

- *It is sometimes hard for me to go on with my work if I am not encourages. (true or false)*
- *I am always courteous, even to people who are disagreeable. (true or false)*
- *I have never deliberately said something that hurts someone's feelings. (true or false)*

Persons who agree with these statements tend to have a higher need for approval than those who disagree.

Studies by Crowne, Marlowe, and others have shown interesting differences between people with high and low needs for approval. One difference is that people with a high need for approval conform more. In one study, a group of subjects was shown a series of slides. Each slide contained two clusters of dots. One of the clusters was clearly larger than the other. Subjects were simply asked to state which cluster was larger. However assistants to the experimenter, posing as subjects, gave obviously wrong answers on some of the clusters. Crowne and Marlowe counted how any times the real subjects agreed with the assistance, even though the assistant's judgments were clearly wrong. The subjects with a high need for approval conformed 59 per cent of the time while those with a low need for approval conformed only 34 per cent of the time. Thus, people with a high need for approval more frequently go along with the opinions of others in order to avoid disruptive or embarrassing disagreements.

People with a high need for approval often change the way they behave if others can observe them. People with a low need for social approval are more likely to act the same whether they are observed or not. For example, in a study by Satow, subjects were told that they could donate to a research fund part of $1.50 they had been paid for participating in an experiment. Subjects in one group were told they could do this in private during the course of the experiment. Subjects in another group were told that they would be observed through a one-way mirror. When subjects were unobserved they gave very little money, whether they had a high or low need for approval. The average donation was for approval. The average donation was about 5 cents. When the subjects thought their behaviour was being observed, they all tended to donate more, but this tendency was much stronger among subjects with a high need for approval. Those with a low need for approval gave about 25 cents. Those with a high need gave nearly 60 cents.

It is clear, then, that people with a high need for approval will do what they believe is expected of them to gain approval or to appear desirable to others. Unfortunately, these efforts to gain approval are not generally successful. College men with a high need for approval tend to be liked less than their peers with a lower need. They also tend to expect rejection. Perhaps they try too hard to be accepted and appear to have little strength of character.

C.2 The Need for Achievement

Like the need for approval, a great deal of research has been concluded on the need for achievement. The need for achievement, commonly called **nAch** by psychologists is the need to accomplish something difficult, to meet a standard of excellence, or to excel. Understanding achievement motivation is difficult because it is complex. The manner in which people strive for achievement is affected by the

need for achievement, fear to failure, and perhaps even fear of success. In this section we shall consider the determinants of achievement strivings and the complexities of the fears of failure and success.

One important determinant of how much a person strives to achieve is the strength of that individuals' need for achievement. Work by David McClelland, John Atkinson, and their associates have advanced our understanding of achievement motivation. McClelland's method for measuring achievement motivation is an unusual one. He analyses stories subjects make up in response to pictures McClelland states:

If you want to understand motives behind actions, find out what's on a person's mind. If you want to find out what's on a person's mind, don't ask him, because he can't always tell you accurately. Study his fantasies and dreams. If you do this over a period of time, you will discover the themes to which his mind returns again and again. And these themes can be used for explain his actions.

Using this and related methods of measuring achievement motivation, McClelland discovered that there are reliable differences in achievement motivation among individuals and also among groups of individuals. For example, some college students have a strong need to achieve relative to their peers. These students tend to do better at tasks such as anagrams and arithmetic problems than other students of equal intelligence. They are also more likely to go into occupations in which they own or manage their own business. McClelland has also found that some groups have higher levels of achievement motivation. For example, middle-class boys have been shown to have higher n Ach scores than lower-class boys; also, junior executives in Turkey. In short, within any group some individual have a higher need for achievement than others, and the average scores varies from group to group. What might account for these differences?

The need for achievement depends on social and cultural factors, which in turn affect child-rearing practices in a culture that values achievement; parents demand self-sufficiency and independence in their children. Such parents tend to be less protective of and to remove restrictions on their children when the children are relatively young. For example, it has been found that boys with a high need for achievement have mother who are concerned that their sons learn to be independent at an early age.

The two motives, to achieve or to avoid failure, can guide behaviour differently. For example, people with a high need for achievement generally choose tasks of moderate difficulty of success. They seem greatly gratified by success but not upset by failure at such tasks. Individuals with a high fear of failure often choose very difficult or very east tasks. They are assured of success at the easy ones and they cannot be blamed for failure at the very difficult ones. Thus the two motivational factors can produce different actions.

Another factor that affects how much individuals strive to succeed is their desire to maintain a positive self-evaluation. People will put extra effort into tasks that are important to their self-definitions. Their tendency to do this is explained by a model of Self-Evaluation Maintenance (SEM).

The SEM model proposes that self-evaluation may sometimes be raised or lowered through a comparison process. This happens when a personal performance is compared with the performance of a close friend on a skill or task that is important to one's self-definition. Suppose, for example, that being a good piano player is important to Joan's self-definition. If her performance is judged to be better than that of her close friend Kay, Joan's self-evaluation will be raised. If her performance is judged worse than Kay's, Joan's self-evaluation will be lowered. According to the model, Joan's self-evaluation will be affected by these comparisons only if piano playing is important to Joan's self-

definition. If it is not, and Kay is better, Joan might bask in Kay's glory, there by experiencing a rise in self-evaluation through her association with Kay.

Let us assume that piano playing is important to Joan. How will she react to information that suggests Kay is better since this threatens her desire to maintain her self-evaluation? Studies have shown that Joan may derogate Kay's performance well under some circumstances. Another reaction would be for Joan to put more effort into her own practicing and performing. A recent study shows that high school students get higher grades when their friends do, provided that academic achievement is important for their self-definition. When academic achievement is not important to these students, they do not match their friend's higher grades. In general, people will strive to achieve a level that other people who are close to them achieve when an unfavourable comparison with those other people threatens their desire to maintain a positive self-evaluation.

One question that has grown out of the extensive work on achievement motivation is how achievement strivings can be increased? McClelland and his associates have attempted the ambitious approach of increasing achievement motivation in societies have led to increased achievement motivation and increased economic success for their companies.

Another approach to increasing achievement strivings is simply to reward them. Following Thorndike's law of effect, this approach assumes that reward can increase behaviours. However, in The Hidden Costs of Reward, Lepper and Greene suggest that rewarding achievement strivings can in the long run decrease such strivings. This hypothesis is based on the concept of "intrinsic motivation."

D. Intrinsic motivation

D.1 What is intrinsic motivation?

Deci and Ryan state that "intrinsically motivated behaviours are those behaviours that are motivated by the underlying need for competence and self-determination." They argue that these needs are innate and that the intrinsically motivated behaviours that derive from them are rewarding in and of themselves. These behaviours are performed in the absence of any apparent external reinforcement. In short, intrinsic motivation is the inner need to be competent and to choose one's own activities.

D.2 Rewards and Intrinsic motivation

Consider an illustrative study. College students were asked to work on a series of puzzles that they found intrinsically interesting. Some students were paid one dollar for solving each of four puzzles. Others were not paid. At a later point in the experiment, subjects were left to occupy themselves in a room where they could work on more puzzles, read magazines, or engage in other activities. The subjects who had been paid for completing puzzles spent less time working on them during this free-time period. Apparently the monetary reward made the students less interested in the puzzles.

Similar effects have been found with young children who were given "good player" awards for playing with attractive art materials and for adults who escaped from a noxious buzzer for successfully completing interesting puzzles.

The explanation for these results focuses on people's perceptions of why they are engaging in the activities. When people are given a reward for doing something they find intrinsically satisfying, their perceptions change. At first they perceive themselves as seeking inner satisfaction. Then they come to perceive themselves as working for money. In a sense, the enjoyable activity becomes "work."

One study found some intriguing differences in the reactions of men and women to reward. This study investigated effects of praise on subject's interest in working or puzzles. Women who were praised showed the typical decrease in intrinsic motivation, while men responded to the praise with increased intrinsic motivation. How can we account for these results? The most probable explanation is that the men regarded the praise as a means of conveying information about their competence. Because the praise made them feel more competent, they became more interested in working on the puzzles. Women, on the other hand, saw the praise as causing or controlling their behaviour. In short, praise can be viewed two different ways: as a means of control or as a means of giving information.

Why should men and women regard praise in different ways? One explanation is the differences in the ways males and females are socialized. Females are more often trained to be dependent while males are socialized to be independent and achievement oriented. Because of learned dependence on others, women may be more sensitive to the controlling aspects of praise. They make take it as a directive about how they should behave and what they must do to please others. Men, on the other hand, may have learned to take praise as a signal that they have an area of competence and skill. Such information may make work in that area more enjoyable and may thus increase intrinsic motivation.

This explanation of the sex difference in response to praise is tentative. More research is needed before we get a firm idea of all that is involved. However, these studies alert us to some of the complex and unpredictable effects of using reward to increase the motivation for achievement. Parents, educators, and others responsible for teaching and caring for children will have to take these effects into account in the complex process of socializing children.

E. Emotion

Humans are emotional beings . Our language is replete with powerful metaphors of the centrality of emotion in our lives: we may be dissolved in tears, petrified by fear, consumed with jealousy, or transported with ecstasy. Emotion continuously colors our experience-our like and dislikes, as well as our joys and aversions. A being that perceives, thinks, and behaves but is devoid of emotion comes close to the popular conception of a robot. For these reasons, the study of emotion has always held a prominent place in psychology.

In the first place, emotions often accompany motivated behavior. For example, feelings of love and affection generally accompany sexual behavior, while feelings of anger generally accompany aggressive behavior. Note, however, that the linkage is not absolute: sexual activity can occur in the absence of tender emotion and aggression in the absence of anger. Conversely, love may be experienced in the absence of sexual activity and anger in the absence of aggression. The frequent uncoupling of emotion and motivation justifies studying them as separate phenomena.

Emotion and motivation are also linked in more complex ways. Emotions may serve as incentives for motivated behavior. We may engage in behavior sequences in order to produce positive emotional states or to avoid negative once. We sometimes seek out the company of particular people to put ourselves in a good mood or go to great lengths to avoid situations that make us feel uneasy.

In addition, emotion may be produced when motivated behaviour is blocked or frustrated. For example, when the environment interferes with attaining important goals, people often experiences stressful negative emotions such as anxiety, anger, and depression. This particular relationship between motivation and emotion is part of the psychology of stress.

In sum, emotion and motivation are distinct psychological processes that can occur independently of each other but that often converge. Emotion can accompany motivated behaviour, can act as a motivator, or can be provoked when motivated behaviour is blocked.

E.1 What is Emotion?

The word emotion literally means a stirred-up or excited state. An emotion, as defined by psychologists, usually includes three components:

(1) a characteristics feeing or subjective experience,
(2) a pattern of physiological arousal, and
(3) a pattern of overt expression.

The subjective component is conveyed in the labels we attach to our emotions, such as fear, anger, joy, or sadness. The physiological component includes all of the bodily changes that occur in emotion. Our language contains many phrases that express these physiological experiences. For example, we speak of "butterflies in the stomach" when fearful, "a lump in the throat" when sad, or "tingling" with pleasure. Such sensations derive from changes in the internal or visceral organs, such as the heart and stomach that accompany emotion. Finally, the expressive component includes the body postures and facial expressions characteristic of different emotions. For example, stooped shoulders and a downcast expression often betray sadness, while tense muscles and a wide-eyed stare often express fear. Sometimes emotional feelings can be induced simply by assuming that characteristic posture and facial expression: compare how you feel when you tense your body and facial muscles with the feeling induced by relaxed muscles and a broad smile.

E.2 Classifying Emotions

Because emotions exist in such a variety of forms and intensities, the task of classification is difficult. Although many different systems of classification have been proposed, there is as yet no universal agreement among psychologists on any single classification. Nevertheless, a number of distinctions are commonly used. These include distinctions between (1) positive and negative emotions, (2) primary and mixed emotions, (3) opposite emotions, and (4) degrees of emotional intensity. We will consider these four distinctions and then show how they have been combined in a classification suggested by Robert Plutchik.

E.2.1 Positive versus Negation Emotions

Emotions can be divided into positive emotions like joy, love, and happiness, and negative emotions like fear, anger, and sadness. In general, positive emotions tend to enhance one's sense of well-being and promote constructive relationship with others. Negative emotions tend to decrease one's sense of well-being and create disturbed relationships with others.

E.2.2 Primary versus Mixed Emotions

Many psychologists like emotions to colours, dividing them into a limited number of primary emotions and a larger number of mixed emotions constructed from combinations of primaries. The primary emotions include, at a minimum, happiness, disgust, surprise, sadness, anger, and fear; some psychologists recognize additional primaries such as contempt and shame. A complex emotion such as disappointment is often considered a mixture of sadness and surprise, while jealousy is considered a combination of love and anger.

E.2.3 Opposite Emotions

Many emotions exist as pairs of polar opposites. Thus we recognize joy as the opposite of sadness, and love as the opposite of hate. Generally speaking, opposite emotions cannot be simultaneously

experienced in mixed form. This principle is often used in psychotherapy when clients are taught to experience a positive emotion in order to block a negative emotion.

E.2.4 Emotional Intensity

All Emotions vary in their degree of intensity. Different words used to describe emotion sometimes simply reflect different intensities of a common underlying emotion. For example, fear can be described in increasing degrees of intensity as follows: uneasy, fretful, tense, apprehensive, tremulous, agitated, panicky, and terrified.

E.3 Bodily Changes in Emotion

As we have seen, any emotion is a complex state consisting of subjective, expressive, and physiological components. Before discussing how these components may be related to each other, we must understand how the nervous system regulates physiological arousal and how this physiological activity can be assessed with electronic recording instruments.

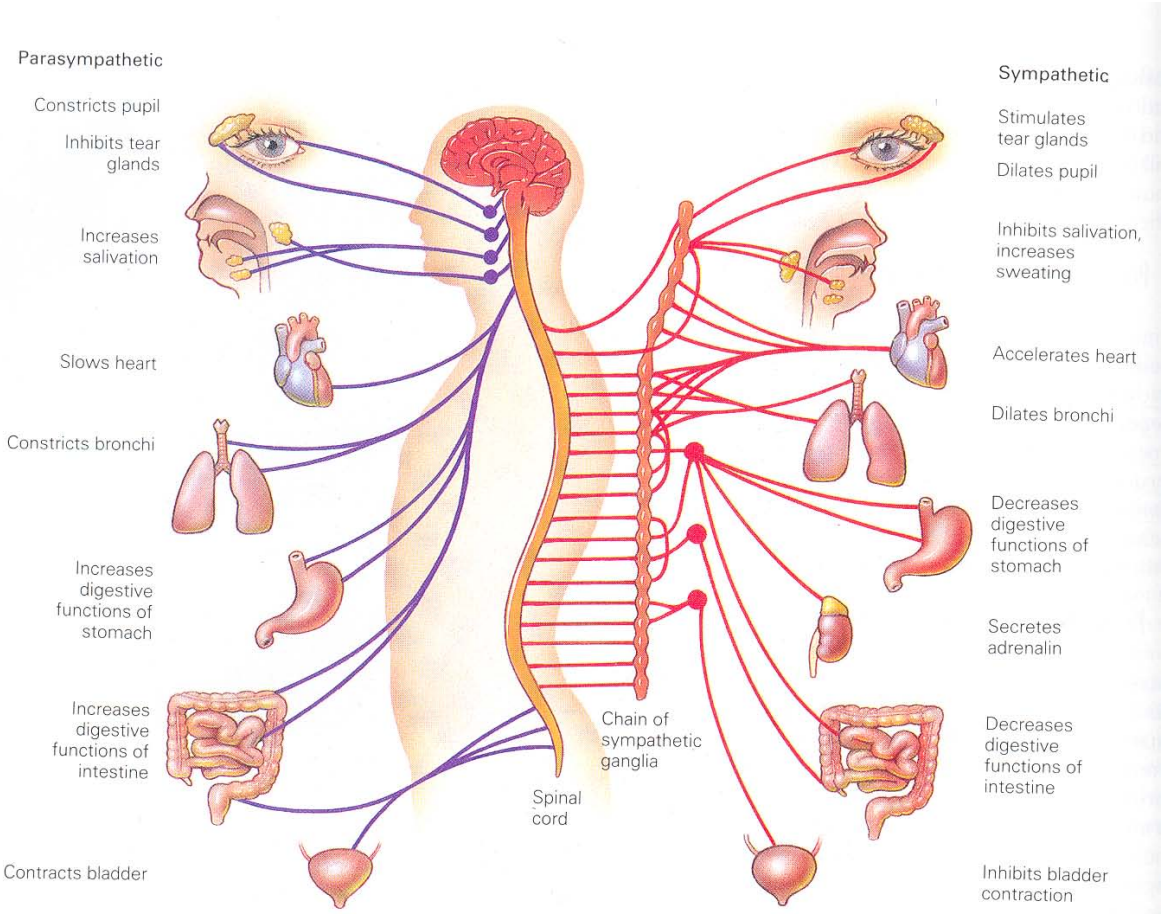

Figure 4.15
A diagram of the autonomic nervous system. Functions of the parasympathetic nervous system are shown on the left, and the sympathetic nervous system is shown on the right.

E.3.1 The Autonomic Nervous System

The nervous system is divided into the central nervous system (the brain and spinal cord) and the peripheral nervous system (the nerves outside the CNS). Further the peripheral nervous system is divided into the somatic nervous system and the autonomic nervous system. The somatic nervous system controls the activity of the skeletal muscles. The autonomic nervous system, or ANS, controls the activity of the visceral organs such as the heart, stomach, and intestines. It also controls the constriction

of small blood vessels throughout the skin and muscles, as well as the activity of the sweat glands. The ANS is thus a communication network linking the brain and spinal cord with the visceral organs, blood vessels, and sweat glands. When we speak of the physiological component of emotion, we are referring to the body system controlled by the ANS. Thus when our hands are cold and clammy in fear, or when we are blushing with embarrassment, it is because the ANS has been activated.

Notice that the ANS has two major divisions: the **sympathetic division** (red lines) and the **parasympathetic division**. The neurons of the sympathetic division leave the central nervous system from the middle portion of the spinal cord. The neurons of the parasympathetic division connect with the central nervous system either at the lowest segment of the spinal cord or at the brainstem. The prefix Para means "outside of"; the parasympathetic division lies outside the sympathetic division.

Most of the visceral organs are controlled by both sympathetic and parasympathetic neurons. The exceptions are the sweat glands and blood vessels, which receive only sympathetic control. Because the sympathetic and parasympathetic divisions tend to have opposing effects, the activity of the visceral organs can be rather finely tuned, or modulated. Important examples of this are seen in the pupil, the heart, and the intestines. Sympathetic activity acts to dilate the pupils, accelerate the heart rate, and inhibit intestinal activity. On the other hand, parasympathetic activity will cause construction of the pupils, deceleration of the heart, and normalize intestinal activity. In general, sympathetic activity increases physiological arousal in order to prepare the organism for vigorous activity while parasympathetic activity tends to reduce physiological arousal and return the organism to homeostatic balance.

E.4 Measuring Physiological Activity

Psychologists interested in studying the physiological correlates of emotion often use an electronic recording instrument known as a polygraph. A polygraph (from poly meaning "many" and graph meaning "write") can simultaneously record several channels of physiological information from electrical signals generated by autonomic nervous system activity, skeletal muscle activity, or brain activity. A polygraph is composed of several amplifiers that detect and boost physiological signals much like a stereo amplifier boosts electrical signals picked up from discs or tapes. A stereo system converts audio signals to sound by driving an electromagnet in a speaker. In contrast, a polygraph converts physiological signals into a visual record by activating electromagnets that move pens back and forth over a continuous length of recording paper. The body's physiological signals are picked up by sensors attached to the subject and are sent to the polygraph via wire cables.

1. Electro encephalogram (EEG). The EEG reflects the brain's electrical activity. It is recorded through metal electrodes attached to the scalp.

2. Respiration. The rate and depth of breathing can be recorded by placing sensors around the chest. One form of respiration sensor is a rubber tube filled with mercury through which a current is passed. As the tube stretches and compresses with each breath, changes in the electrical resistance of the mercury are recorded on the polygraph.

3. Finger Pulse Volume. Each time the heart beats, blood surges through the blood vessels. These surges can be sensed at the fingertips with a device known as a plethysmograph. This device generates an electrical signal that is proportional to the amount of blood in the finger at any one time.

4. Heartbeat. The heart is a strong muscle that generates an electrical signal each time it contrasts. These signals, known as the electrocardiogram (ECG), is picked up from metal electrodes placed on the

chest. The heart rate can be recorded with a meter that measures the time between successive heartbeats. The elapsed time is displayed on a polygraph channel separate from the ECG.

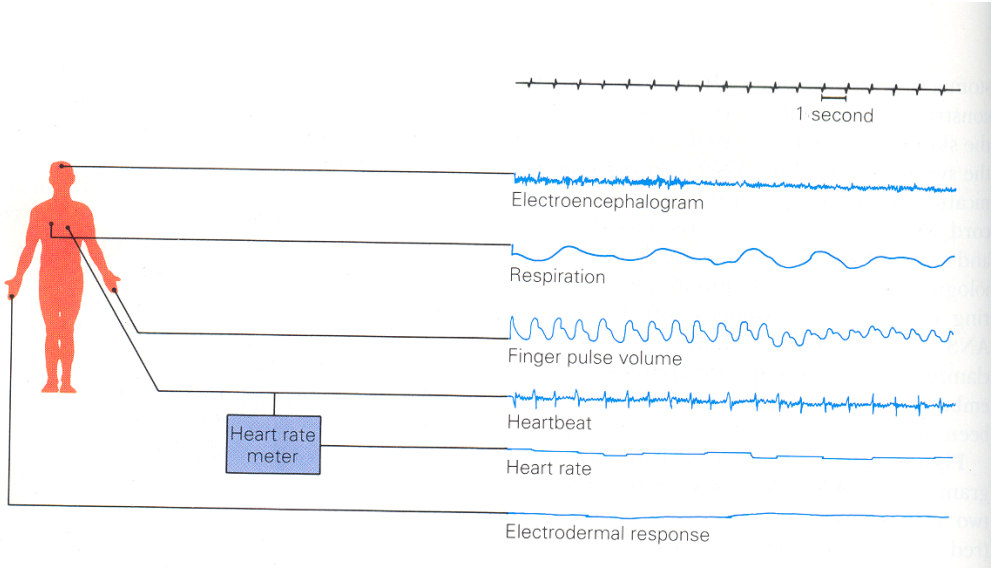

Figure 4.16
Some of the bodily functions that can be monitored by a polygraph. (From Gale & Coles, 1969)

5. Electro dermal Response (EDR). The EDR reflects the electrical activity generated by the sweat glands in the hand. It is recorded by metal electrodes placed on the palm or fingertips. The EDR is often referred to by an older term, galvanic skin response (GSR).

Although a polygraph is primarily a scientific research instrument, small, portable polygraphs are often used in notice investigations as "lie detectors." This use of the polygraph is quite controversial, however, and most psychologists are sceptical that polygraph tests can in fact detect suspect's attempts to be deceptive. The use of polygraph information to detect deception assumes, first, that deceptive statements will create embarrassment or anxiety for the subject and second, that these emotions will be reflected in increased physiological arousal. A good deal of research has attempted to test the validity of these assumptions. A disturbing finding is that polygraph examiners often erroneously conclude that suspects have been deceptive when in fact they are innocent of any crime. This is probably because innocent suspects are as threatened by the consequences of "failing" a polygraph test as are guilty suspects. To the extent that this threat is accompanied by increased physiological reactivity to questions regarding the crime, truthful answers can also be judged to be deceptive by the examiner. Research shows that as many as 50 per cent of innocent subjects will be considered deceptive in polygraph examinations. In sum, the polygraph test does not distinguish very well between deceptive and truthful a subject, which casts doubt on its use as a "lie detector"

F. Theories of Emotion

Theories of emotion attempt to specify exactly how emotion-provoking events and physiological arousal interact to produce subjective emotional experience, or emotions as we feel them. The question has been debated by psychologists for over a century. Our discussion begins with the classic theory of emotion proposed by William James in his Principles of Psychology. We then consider criticisms of this theory, as well as research relating to important issues raised by it. Finally, we examine the contemporary two factor theory of emotion.

F.1 James-Lange Emotion Theory

The first comprehensive theory of emotion was formulated by William James in the late nineteenth century. James's work continues to be a source of many stimulating ideas for psychologists James' theory of emotion is sometimes known as the James-Lange theory because a similar theory was introduced about the same time by Danish physiologist **Carl Lange.**

James proposed a theory of emotion that was quite contrary to common-sense notions of the time. The common-sense view held that subjective emotional experience preceded physiological arousal: we feel sad, therefore we cry; we feel afraid, therefore our heart races; we feel happy, therefore we laugh, and so forth.

James turned this formulation on its head by suggesting an opposite sequence of events: we feel sad because we cry, afraid because our heart races, and so forth. In other words, an emotionally arousing event triggers a specific pattern of visceral activity that is then experienced as a specific emotion. If we were to meet a bear in the woods, according to James, our heart would begin to race, our hands would become cold and clammy, and then we would feel afraid. In James' words, "Bodily changes follow directly the perception of the existing fact… Our feeling of the same changes as they occur is the emotion". The contrast between the common-sense and James-Lange views of emotion is diagrammed.

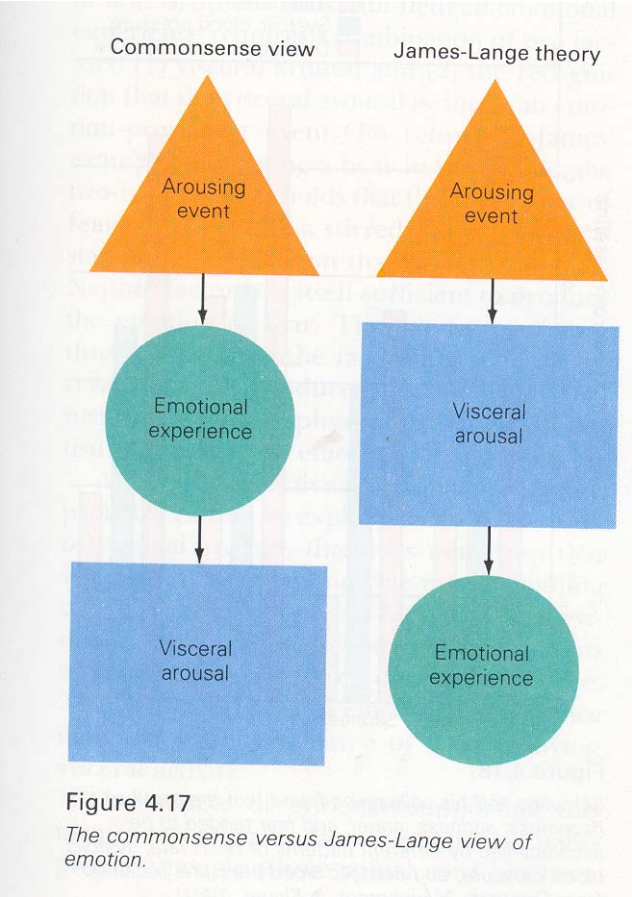

Figure 4.17
The commonsense versus James-Lange view of emotion.

F.2 Cannon-Bard Criticism or Theory

James's theory of emotion contains two major assumptions: (1) each emotion is accompanied by its own specific pattern of visceral arousal, and (2) people label their emotional states by perceiving the patterned feedback from their visceral activity. These assumptions were several criticized a generation later by Walter B. Cannon, a prominent physiologist.

Cannon argued first of all that the anatomy of the automatic nervous system did not allow for the possibility of patterned visceral arousal. He believed that the sympathetic division of the ANS was so constructed that only a generalized state of arousal was possible in any and all emotional situations. In other words, Cannon believed that the ANS would respond in a unitary manner to any emotional stimulus and, therefore, the patterned arousal could not be the basis of emotional experience. Cannon thought that all emotions would be accompanied by a similar pattern of visceral activity.

Secondly, Cannon argued that the activity of the visceral organs was extremely difficult to perceive accurately. To emphasize his argument, Cannon chose an extreme case, pointing out that most people have only the vaguest knowledge of the spleen, and, even if aware of this anatomic structure, are unlikely to recognize changes in its activity. In sum, Cannon argued that the subjective experience of emotion could not depend in any specific way on patterned visceral activity.

As part of his critique of James' theory, Cannon proposed an alternative possibility. Whereas James felt that visceral arousal was the basis of emotional experience, Cannon emphasized instead the role of brain mechanism in generating emotional experience. Specifically, Cannon theorized that the thalamus, located at the top of the brain stem, was a crucial integrative center for emotion. According to Cannon, information from an emotion-provoking event is first relayed from sense organs to the thalamus. From the thalamus, this information is relayed both downward via the automatic nervous system to produce visceral arousal and upward to the cerebral cortex to produce conscious emotional experience. This hypothesis, which was also proposed and expounded upon by American physiologist Philip Bard, is known as the Cannon-Bard theory of emotion. It asserts that there is no one-to-one relationship between visceral arousal and subjective emotional experience. Although the two events occur simultaneously, they are linked only in that both are controlled by a common brain center.

F.2.1 Research Findings

The difference of opinion between James and Cannon has stimulated a great deal of research on the roles of visceral patterning and of visceral feedback in emotion. The question of visceral patterning has been investigated by placing subjects in real or imagined situations designed to elicit different emotions and recording, usually with a polygraph, the accompanying visceral changes. The results of such studies suggest that the **ANS is capable of greater patterned activity** than Cannon believed.

In one study, subjects were asked to recall as vividly as possible the feelings associated with specific events in their lives that had produced happiness, sadness, anger, or fear. During the re-creation of each emotion, the experimenters measured subjects heart rate, systolic blood pressure (blood pressure at the heartbeat), and diastolic blood pressure (the blood pressure between heartbeats). If, as Cannon thought, different emotions are accompanied by unitary pattern of physiological arousal, we would expect the four emotions to produce similar effects in each of the three physiological measures. On the other hand, difference in the physiological effects associated with each emotion would support the idea of visceral patterning. Heart rate was lowest during happiness and highest during anger and fear. Diastolic blood pressure was highest in anger, lowest in sadness, and intermediate in happiness and fear. These results are consistent with earlier studies that reported different physiological arousal patterns when comparing anger with fear and sadness with happiness.

It appears, then, that visceral activity is differentially patterned-at least in certain strong primary emotions -as James believed. Whether more subtle or mixed emotions are similarly patterned is still an open question. These findings make sense if we remember that motivated behaviour often accompanies emotional states. Organisms may attack a source of anger or flee a source of fear, for example. To the extent that these behaviour patterns differ, we might also expect underlying physiological arousal patterns to differ.

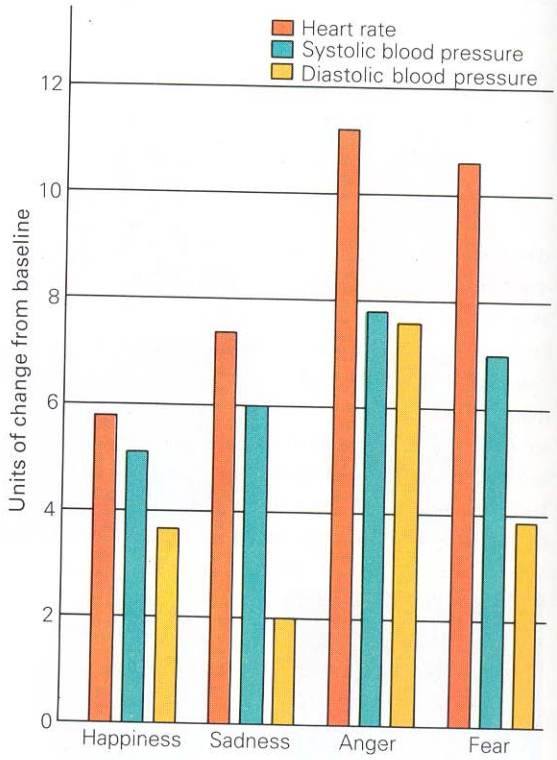

Figure 4.18

Schwartz and his colleagues found that the recall of happiness, sadness, anger, and fear tended to be accompanied by different patterns of heart rate, systolic blood pressure, and diastolic blood pressure. (Adapted from Schwartz, Weinberger, & Singer, 1981)

Additional support for the James-Lange theory of emotion is provided by studies of the facial feedback hypothesis according to which changes in our facial expression sometimes produce shifts in our emotional experiences rather than merely mirroring them.

James' second assumption-that people label their emotional states by perceiving the patterned feedback from visceral activity-is more controversial. On the one hand, people often speak of a "lump in the throat," "butterflies in the stomach," or a "racing heart" during various strong emotions. On the other hand, research indicates that people are not very accurate in perceiving less intense changes in the activity of specific visceral organs. Psychologists have studied this problem by recording visceral activity on a polygraph and asking subjects to indicate when a particular visceral organ is increasing or decreasing its rate of activity. Even after prolonged training, subjects do not learn to perceive their own visceral activity with any degree of accuracy. It therefore appears that Cannon was correct in questioning the degree of accuracy. It therefore appears that Cannon in questioning the degree to which visceral arousal is the primary basis for subjective emotional experience.

F.3 THE ATTRIBUTION-OF-AROUSAL THEORY

In contrast to the James'-Lange theory, which emphasizes the role of feedback from the musculature and the autonomic nervous system, an alternative focuses on **cognitive factors**. After all, emotional experiences are usually initiated by external events –a letter with tragic news, a loved one's return, a job failure. Events such as these bring grief, joy dejection, or humiliation, but before they affect us emotionally they must be appraised and understood. Is the friend's action generous or indifferent? Is the dog friendly or hostile?

Contemporary psychologists emphasize, more than did James, the role of cognitive factors in determining subjective emotion. The current view is that people have some ability to perceive their own visceral arousal, but that this perception is vague and imprecise. In addition to visceral arousal, emotional experience depends on the person's evaluation of external stimuli as emotion-provoking or not. In other words, full-fledged emotional experience requires a combination of two-factors: (1) visceral arousal and (2) the recognition that the visceral arousal is due to an emotion-provoking event. To return to James' example of meeting a bear in the woods, the two-factor theory holds that the

experience of fear requires both a striped-up physiological state and a perception that one is in danger. Neither factor is in itself sufficient to produce the emotion of fear. The **two-factor theory** thus accounts for the fact that a state of visceral arousal produced by non-emotional means, such as by physical exercise, will not usually give rise to emotional experience.

Although subjective emotional experience probably cannot be explained as a direct result of visceral arousal, this does not mean that visceral arousal plays no role in determining our subjective experience. A good deal of evidence suggests that visceral arousal functions as a sort of amplifier of emotional experience. That is, the intensity of emotional experience increase with the degree of accompanying visceral activity.

One source of evidence supporting this idea comes from studies of emotion in paraplegics-people whose spinal cord has been accidentally severed. The result of such an accident is to disconnect sensory neurons flowing from visceral organs back to the brain, so that internal bodily sensations are eliminated. Paraplegics often report that they continue to experience the same emotions as they did before their accident but that the emotions are less intense. In addition, people whose spinal cord is severed higher up on the back report greater loss of emotional intensity than those whose cord is severed lower on the back. Obviously, the higher the break, greater is the number of sensory neurons that are disconnected from the central nervous system.

A second source of evidence for the amplification function of visceral arousal comes from experiments showing that emotional responses to situations are enhanced if visceral activity is artificially increased. In one series of studies, research first had to annoying person provoke the subjects and then asked the subjects to engage in strenuous physical exercise, which increased their visceral activity. Following the exercise, they were again confronted with the annoying person. These subjects experienced more intense feelings of anger and were more likely to act aggressively against the annoyer than control subjects who were provoked but did not engage in arousing physical exercise. Prior physical exercise has also been shown to erotic films as well as to increase males' romantic attraction to unattractive women. In brief, visceral arousal from non-emotional sources can combine with visceral arousal from emotional events to augment the intensity of the experienced emotion. The two-factor theory thus stand somewhere between James and Cannon. While holding with Cannon that visceral arousal is not the sole basis of emotional experience, the two-factor theory nevertheless assigns an intensity function to such arousal.

F.4 The Case of Unexplained Arousal

In everyday emotional states, the cues that trigger physiological arousal also provide us with an explaining for our aroused condition. According to the two-factor theory, arousal combines with our cognitive interpretation of the reasons for this arousal to produce subjective emotional experience. But what would happen if the cognitive and physiological components were uncoupled and we felt aroused for no apparent reason? Consider, for example waking one morning with cold, clammy hands and a racing hear but having no adequate explanation for these symptoms. Would we feel emotional?

This question was raised in a famous experiment by Stanley Schachter and Jerome Singer, who proposed that people in this condition would be motivated to seek an appropriate explanation for their aroused condition. In seeking an explanation, these people would then interpret their strived-up condition in terms of any number of possible emotions. They might decide they were happy, and sexy, afraid, or anxious depending on the situation of an attractive person or anxious if anticipating a stressful event.

Schachter and Singer tested their hypothesis by injecting volunteer subjects with epinephrine, a drug that causes sympathetic nervous system arousal. They informed some subjects of the precise effect of the injection, thus giving these subjects an adequate explanation for their symptoms and no need to seek an emotional explanation for their stirred-up condition. These "informed" subjects constituted the control group. Other subjects were not given an adequate explanation for their physiological arousal. They were either given no explanation or actually were misled regarding the drug's effects. These "uninformed" subjects constituted the experimental group. Schachter and Singer hypothesized that the uninformed subjects would seek an explanation for their physiological arousal by searching their social environment with the help of two confederates. The first confederate was trained to feign anger at the appropriate time; the second was trained to act in a euphoric and happy manner. The behavior of each confederate established each social environment. After receiving the injection, subjects from the control and experimental groups were placed in one of these two social environments. Schachter and Singer's hypothesis stated that the uninformed subjects would label their aroused state in terms of the behavior displayed by the confederate.

Unfortunately, the results of the Schachter and Singer study were somewhat equivocal. The hypothesis was confirmed for subjects placed with the angry confederate. Presumably searching for a reason for their arousal, uninformed subjects did in fact behave more angrily than did control group subjects who had previously been given a rationale for their sympathetic arousal. However, no differences between informed and uninformed subjects were observed in the euphoric environment. Subsequent studies by other researchers with the same interest have also failed to confirm the Schacter and Singer hypothesis. These later studies have found that subjects experiencing unexplained arousal generally feel somewhat uncomfortable regardless of the emotional quality of the social situation in which they are placed.

It now appears that Schachter and Singer underestimated the role of physiological factors per se in determining the subjective experience of emotion. However, Schachter and Singer provocative hypothesis has generated a great deal of research, which in turn has led directly to the two-factor theory of emotion. The Schachter and Singer experiment is thus a good example of how the specific findings of scientific research are sometimes less important than the ideas the research generates.

F.5 Lazarus - Cognitive Appraisal Theory (Structural Model of Appraisal)

The structural model of appraisal helps to explain the relation between appraisals and the emotions they elicit. This model involves examination of the appraisal process as well as examination of how different appraisals influence which emotions are experienced. According to Lazarus, theories of emotion involve a relational aspect, a motivational aspect, and a cognitive aspect. The relational aspect involves the relationship between a person and the environment and suggests that emotions always involve an interaction between the two. The motivational aspect involves an assessment of the status of one's goals and is the aspect of the evaluation of a situation in which a person determines how relevant the situation is to his or her goals. Finally, the cognitive component involves one's appraisal of the situation, or an evaluation of how relevant and significant a situation is to one's life. Lazarus suggests that different emotions are elicited when situations are evaluated differently according to these three categories. In order to evaluate each emotion individually, however, a structural model of appraisal is necessary. This model allows for the individual components of the appraisal process to be determined for each emotion. In addition, this model allows for the evaluation of how and where the appraisal processes differ for different emotions.

Primary Appraisal The appraisal process is broken up into two different categories, primary appraisal and secondary appraisal. In a person's primary appraisal, he or she evaluates two aspects of a situation: the motivational relevance and the motivational congruence (Smith & Kirby, 2009). When evaluating

motivational relevance, an individual answers the question, “How relevant is this situation to my needs?” Thus, the individual evaluates how important the situation is to his or her well-being. The motivational relevance aspect of the appraisal process has been shown to influence the intensity of the experienced emotions so that when a situation is highly relevant to one’s well-being, the situation elicits a more intense emotional response. The second aspect of an individual’s primary appraisal of a situation is the evaluation of motivational congruence. When evaluating the motivational congruence of a situation, an individual answers the question, “Is this situation congruent or incongruent (consistent or inconsistent) with my goals?” Individuals experience different emotions when they view a situation more consistent with their goals than when they view it as inconsistent.

Secondary Appraisal People’s emotions are also influenced by their secondary appraisal of situations. Secondary appraisal involves people’s evaluation of their resources and options for coping. One aspect of secondary appraisal is a person’s evaluation of who should be held accountable. A person can hold herself, another, or a group of other people accountable for the situation at hand. Blame may be given for a harmful event and credit may be given for a beneficial event. In addition, an individual might also see the situation as due to chance. The way in which people view who or what should be held accountable directs and guides their efforts to cope with the emotions they experience. Another aspect of secondary appraisal is a person’s coping potential. Coping potential is potential to use either problem-focused coping or emotion-focused coping strategies to handle an emotional experience. Problem-focused coping refers to one’s ability to take action and to change a situation to make it more congruent with one’s goals. Thus, a person’s belief about their ability to perform problem-focused coping influences the emotions they experience in the situation. On the other hand, emotion-focused coping refers to one’s ability to handle or adjust to the situation should the circumstances remain inconsistent with one’s goals. Again, the emotions people experience are influenced by how they perceive their ability to perform emotion-focused coping. The fourth component of secondary appraisal is one’s future expectancy. Future expectancy refers to one’s expectations of change in the motivational congruence of a situation (for any reason). Thus, an individual may believe the situation will change favorably or unfavorably (Lazarus, 1991). One’s future expectancy influences the emotions elicited during a situation as well as the coping strategies used.

The structural model of appraisal suggests that the answers to the different component questions of the primary and secondary categories allow researchers to predict which emotions will be elicited from a certain set of circumstances. In other words, the theory suggests that researchers are able to examine an individual’s appraisal of a situation and then predict the emotional experiences of that individual based upon his or her views of the situation. An example of a particular emotion and its underlying appraisal components can be seen when examining the emotion of anger. If a person appraises a situation as motivationally relevant, motivationally incongruent, and also holds a person other than himself accountable, the individual would most likely experience anger in response to the situation. Another example of the appraisal components of an emotion can be given in regards to anxiety. Like anger, anxiety comes from the evaluation of a situation as motivationally relevant and motivationally incongruent (Lazarus, 1991). However, where anxiety differs from anger is in who is held accountable. For anger, another person or group of people is held accountable or blamed for a wrongdoing. However, in regards to anxiety, there is no obvious person or group to hold accountable or to blame. The structural model of appraisal allows for researchers to assess different appraisal components that lead to different emotions.

G. The Expression of Emotion

Emotions can often be read from a person's "body language" – his or her posture, bearing, and gestures. Facial expression is particularly important in this regard. The face contains a large number of separate muscles that can contract in a wide variety of different patterns to produce the smile of joy, the wide eyes of fear, the sneer of disgust, and so forth. Conveys the complex mosaic of the face by illustrating some of its major muscles.

The importance of facial expression in emotion was first suggested over a century ago by Charles Darwin in a book entitled. In this important work, Darwin argued that emotions had developed in human evolution because they promoted adaptation of the individual to his or her environment. Darwin saw emotions as an integral part of behavior patterns that had evolved to help ensure individual survival. For example, fear can be seen as the emotional accompaniment of the behavior of fleeing in response to danger, and joy as an accompaniment to courting and mating. More specifically, Darwin argued that the facial expression of emotion was adaptive because it single to others how the individual felt and therefore what kind of behavior was most likely to occur. In sum, facial expression of emotion served as an important means of communication among member of the social group.

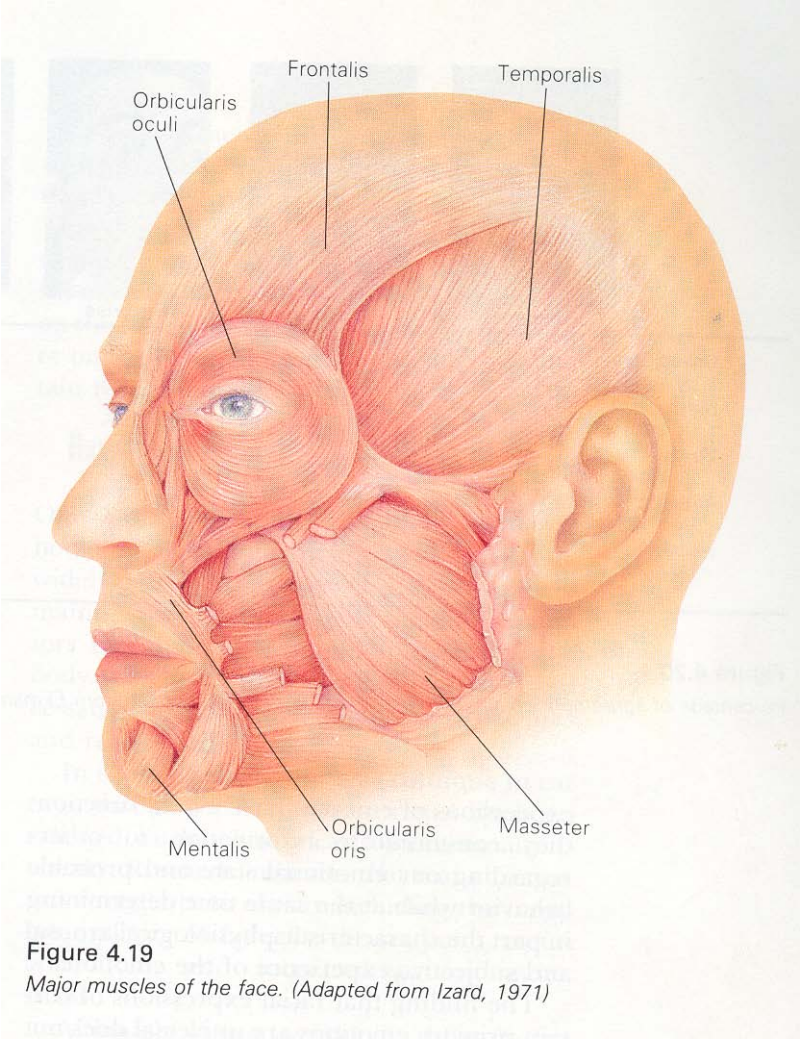

Figure 4.19
Major muscles of the face. (Adapted from Izard, 1971)

Darwin's theory of emotion was neglected by psychologists. For nearly a century. This was done primarily because this theory suggested that human emotion were genetically determined, or instinctual. Most twentieth-century psychologists chose to emphasize the role of learning and experience in emotional expression. More recently, however, Darwin's theory has been the focus of a number of interesting investigations. For example, if as Darwin claimed emotions have developed in the evolution of the species, then facial expression of emotion should be similar from culture to culture. This hypothesis has been tested by asking people in different countries to judge emotions expressed in facial photographs. **Ekman and Friesen** conducted in this research by showing photographs expressing six different primary emotions to university students in five countries. The subject were asked to match each photograph with one of six words describing emotion in their own language. Shows some of the photographs used and the agreement across cultures in judging the emotions expressed. The fact that there was such high agreement across different cultures supported the investigator's hypothesis that the same facial expressions are associated with the same emotions, regardless of culture or language.

Some psychologists have suggested that the facial muscles not only express emotions but actually contribute to our subjective experience of emotion. According to this facial-feeding hypothesis, assuming the facial expression characteristic of different emotions seems to induce different feelings. You can try this experiment by noting how you feel when smiling, frowning, or simply relaxing your muscles. A recent study went one step further by asking whether assuming different facial expression would lead to different patterns of physiological arousal. the subjects were actors well versed in mimicking the facial expressions characteristic of primary emotions like those in. at the same time, a polygraph recorded a variety of physiological responses. The increased when the actors assumed emotional expression and that the patterning of physiological responses distinguished to some extent among various types to emotional expressions. Such research suggests that facial expressions of emotion have a dual function: they communicate information to others regarding our emotional state and probable behavior while at the same time determining in part the characteristic physiological arousal and subjective experience of the emotion.

The finding that facial expressions of certain primary emotions are universal does not mean that learning plays no role in emotional expression. Because we can voluntarily control our facial muscles, we have the ability to inhibit or modify the universal stereotype. In is possible to learn from one's culture or experience not to express one's emotions. For example, the relatively stoic attitude in Germanic and Anglo-American cultures during funerals is in marked contrast to the more expressive attitude found in Latin cultures. By the same token we can learn to communicate our feelings in culture-specific ways. Thus, in China, sticking out one's tongue is a was of showing surprise, whereas the same gesture in North America has a quite different meaning.

In sum, the expression of certain primary emotions is a universal human trait that appears to have evolved as a means of communications. But these universal patterns of expression can be modified in culture-specific ways by learning.

Measurement of emotion & motivation:

motivation is an inferred variable. we cannot see and measure motivation directly. The indirect method includes

1.obstacle method to measure drive

2. emotion as an index and indirect route to motivation. Here we use one of the three components i.e.physiological arousal as an index for emotion which in turn indicates motivational state of the organism .

3. projective techniques: TAT like techniques are used .